

# *All Plumb Ltd*

Craftsman Plumbers, Drainlayers and Gasfitters



28/7/18

## **Woburn Apartments, Lower Hutt.**

To whom it may concern.

The following report is based upon an onsite audit carried out by AllPlumb Ltd at the Woburn apartments located at 61 Wai-iti Crescent, Whites Line West, Lower Hutt.

This audit took place between 25 June and 25 July 2018.

Please refer to the attached letter previously prepared for the Masonic Villages Trust and the Plumbers, Gasfitters and Drainlayers board for the back ground information regarding the site in question.

The initial purpose of the audit was to identify any plumbing related issues that may or may not be present and present the findings to Masonic Villages Trust management.

The audit was carried out in every apartment and room in the building which contained sanitary and or potable water services to which residents and the public have access. Each room has a report relevant to the findings and where necessary an attached photograph.

The building has been constructed over four years and two stages. Stage one has been occupied since February of 2015. Stage two has been occupied since September of 2017.

The issues as found during the audit period (25 June to 25 July) are as follows.

### **Floor waste gullies.**

**All uncharged floor waste gullies are considered unsanitary plumbing and as such constitute a severe risk to health.**

**A total of twenty nine (29) floor waste gullies have been found to be uncharged.**

**A further three (3) are of concern.**

Uncharged floor waste gullies (FWG) are made up as follows.

**Trap priming valves. Seventeen (17) uncharged FWGs.**

**Nine (9) of which are located in occupied apartments.**

At the time of this report there are seventeen FWGs that have been found to be uncharged due to the associated trap priming valve not operating. These trap priming valves are located throughout the building. (please refer to quick reference guide or full audit notes)

During the audit no trap priming valve has been found to be operational.

#### **Rubbish rooms. Ten (10) uncharged FWGs.**

All rubbish collection rooms inspected during the audit have a 15mm hose tap located at a central point of the room. After discussions with apartment staff and Masonic Villages management it became apparent that neither was aware that the FWGs were required to be manually charged by staff for the life of the building.

Therefore the building has had up to ten uncharged FWGs in the rubbish collection rooms for the duration of occupation.

Many of the FWGs in question have little to no chance of being charged with the provided hose tap as they regularly have been installed up to one meter from the tap and or are positioned to be higher than the surrounding floor level.

When the hose tap is activated for testing/charging a very large percentage of water is discharged onto the surrounding floor, the resulting water spillage results in water coming into contact with the hall way carpet, bottom plate of wall framing and in the case of level 2 stage 1 the water discharges into the elevator shaft.

Two rubbish rooms have been found to have no water supplied to the hose tap from the mains supply.

#### **Apartments G12 and G16 uncharged FWGs.**

G16 has a FWG situated roughly in the middle of the kitchen floor. This gully is piped to the tundish/overflow tray of the Hot Water Cylinder (HWC). The FWG in question was dry and has been a matter of great consternation to the two occupants ever since they moved in as they have not been able to identify the cause of the foul odour (sewer gasses) which at times permeate the apartment. The Cold Water Expansion valve and Temperature/Pressure Relief valves (CLD EXP/TPR) are not operating correctly and therefore are not charging the FWG.

G12 is as above but as the trap filling program had been initiated upon the discovery of the uncharged FWGs G12 was found to have a charged FWG at the time of audit.

The occupants are adamant that the FWG was not charged before the filling program was initiated.

Therefore it would be reasonable to assume that at least some of the CLD EXP/TPR valves may not be working correctly.

Please note that many FWGs are located directly under laundry appliances or refrigerators making it very difficult to ascertain if a FWG is being charged correctly.

### **Apartments 138,208 and 209 uncharged FWGs**

These apartments have a bath fitted (which also has a 40mm trap fitted) these bath wastes discharge into a bathroom FWG. At the time of audit these FWGs were found to be uncharged as a result of lack of use of the bath.

### **Apartment 116**

During the course of this audit apartment 116 was inspected and found to have very serious sanitary plumbing issues. Please note that an elderly resident had passed away in this apartment in the week before the audit commenced.

Upon investigation it was discovered that the FWG which is located in the kitchen floor directly in front of the kitchen sink cupboard had been incorrectly connected to the kitchen sink resulting in the accumulation of food wastes in the FWG. This food waste then began to decompose and grow what appears to be a white hairy mould. Also inside the kitchen cupboard is a trap priming valve which should have had pipework connecting it with the previously mentioned FWG, it did not. The trap priming valve pipework had been incorrectly connected into the sewer pipework of the building. The result of these errors was that the FWG was growing a hairy mould and the trap priming pipework was venting the sewer directly into the kitchen cupboard. It should be noted that even if the pipework had been correctly connected the non-operational trap priming valve would not have maintained the water seal of the FWG and the FWG would have also been directly venting the sewer into the room.

Also the shower was found to have large amounts of trapped water under the stainless steel channel which had encouraged the large amounts of organic growth observed.

The local authority was immediately informed [REDACTED] and Masonic Villages project manager [REDACTED] was shown firsthand the issues previously stated. As stated in the previous letter to Masonic Villages management and the Plumbers, Gasfitters and Drainlayers board. Apartment management were informed that apartment 116 was an exceptional case and that no one should be allowed to stay in the apartment overnight or carry out remedial plumbing work and also that the plumbing in question would require further investigation. On Friday 20 July myself and another member of the Masonic Villages maintenance staff entered apartment 116 and discovered that a third party had altered the sanitary pipework back to a compliant layout. At a later date it was brought to my attention by another resident that the elderly lady previously occupying apartment 116 had regularly complained of bad smells in her apartment.

Please see previous letter for more information regarding this matter.

### **Apartment 203**

The laundry FWG, which is located in front of the washing machine/tub was charged at the time of audit but a closer inspection of the FWG showed very large amounts of organic growth (grey). The laundry FWG has a non-operational trap priming valve and is therefore not being charged. After confirming the

trap priming valve pipework was indeed connected to the FWG and then running the tub it became apparent that the tub waste which is connected to the waste pipework after the FWG was “back filling” into the FWG. IE- the pipework in the vicinity of the tub/FWG is running in part backwards. Also the kitchen FWG is up to 5mm higher than the surrounding floor area.

During the audit it was brought to my attention by residents that Bar West regularly contained a foul odour and that many complaints had not eventuated in remedial action. Upon investigation it was obvious that there was indeed a foul odour in this communal conservatory, bar, meeting area. Investigation revealed two FWGs serviced by trap priming valves, neither of which was operational. The first FWG was obvious as it is located directly in front of the bar sink area and was charged at the time of the audit due to the FWG filling program previously mentioned. The second was difficult to identify as the FWG is located in the kitchen located in a small annex behind the bar at the very back center under a large refrigerator. As this FWG was concealed Woburn apartment staff were unaware of its existence and the FWG continued to discharge sewer gasses into the room resulting in the foul odours mentioned by residents.

Also Bar West has two kitchen sink taps that were tested and found to be over temperature due to no Tempering valve being fitted.

Further to the above it has been observed (see attached pictures) that a great many of the FWGs around the building have been installed at a finished height above the general floor area height. During the audit period AllPLumb Ltd has observed four instances where leaking water has been discharging very close to a FWG but as the FWG is positioned higher than its surrounds the water has discharged into the ceiling/floor below.

It has also been observed that some FWGs have developed an organic growth. This displays generally in one of two ways. 1. An organic growth with a similar look to seaweed, although grey in colour. 2. A lush green slimy substance. (see attached pictures)

During the period of the audit in excess of ninety percent of inspected FWGs have required clearing of building detritus. This has included saw dust, ground concrete particles, broken concrete, bolts, various sized nails, rags, pieces of plate steel, insulated pipe, various sized pieces of PVC pipe and small pieces of timber.

### **Shower outlets and channels of concern. +/-Ninety Six (96)**

All Shower channels inspected are non-compliant.

See attached pictures

The pvc waste pipe portion of the shower, which is usually piped in 65mm pvc rises from the floor/concrete below and as it reaches a level below finished floor level a pvc fitting with a tapered entry has been installed. Above this a stainless steel channel has been fitted to tiles with the use of silicone to fit into a preformed concrete channel.

When the shower is used water fills the stainless channel and then falls freely at times over 300mm into the water below. The expanding steam then rises and enters an air gap of anywhere between 3mm and 40mm in depth and often in excess of 90mm in width. These shower channels are up to one meter wide. Over time this air gap produces in some cases very large amounts of organic growth which generally cannot be seen by residents and constitutes a serious health risk.

Many shower channels have been manufactured with a short spigot. This is of no benefit as it does not connect to the pvc in an appropriate manor. In many cases the factory produced spigot has not matched up with the provided pvc pipework and has been removed at which point another hole has been created in the stainless steel channel to line up with the installed pvc pipe work leaving a sharp edge. The original hole is left open.

Large amounts of organic growth have been observed in some showers (both grey and black) and also the non-adherence of the water proofing membrane to the tapered pvc fitting.

Some showers have the issues stated previously but also have had the rising pvc terminated in a position that locates the pvc inlet to various degrees under the bottom plate of the wall framing above. In some cases the rising pvc pipework is so far under the wall that the tapered water entry cannot be seen at all. Only concrete directly under the stainless steel channel (see pictures of rooms G02,103,205) Invasive investigations were not part of this audit but it would be reasonable to assume that at least some of the expanding steam etc could make its way into the shower wall cavity which could cause the wall to fail and encourage organic growth.

Further investigation would clarify the above.

### **Back flow/cross contamination protection.**

### **Three medium risks and one high risk.**

Please see attached letter from Mechanical Maintenance Ltd (IQP)

Ground floor stage two has a hair dressing salon located at the East side of the main entrance. Hair dressing salon hair wash basins are considered to be a "high risk" and therefore require the installation of up to two Reduced Pressure Back Flow Preventers (RPZs)  
No RPZs have been fitted in relation to this hair salon.

Ground floor stage two has a commercial kitchen and located therein are two "medium risk" appliances. One steam oven and one coffee machine. These require the use of testable double check valves to comply.

No testable double check valves have been fitted to these appliances.

This kitchen is serviced by two trap priming valves, neither of which are operational. Also the associated FWGs have been installed at a higher level than the surrounding floor.

Level one stage two has a large spa pool supplied for the use of residents. Spa pools are considered “medium risk” and require the use of testable double check valves to comply.

At the time of audit a length of garden hose was discovered to be attached to the 15mm hose tap located under the changing bench. This garden hose is used to both fill and drain the spa pool. This is a classic example of possible back flow and or cross contamination of the potable water supply of the building.

No testable double check valve has been fitted to this water supply.

### **Hot water cylinders.**

All apartments and public WCs are serviced with various sizes and styles of mains pressure electric hot water cylinders (HWC). All plans and working drawings supplied to AllPlumb Ltd show that the tundish pipework and HWC overflow tray pipework shall be run in 50mm copper tube. All audited HWCs have thus far been piped in 40mm pvc pipe.

Some HWCs have had the water pipework incorrectly installed insomuch as the cold water expansion valve has been installed up to 400mm above the cold water inlet height of the HWC. This results in the HWC being unable to be drained via the appropriate cold water expansion valve and will require that the HWC be syphoned in the event of maintenance or replacement.

A great many Temperature and Pressure Relief valves (TPR) have been installed with the use of Hemp rather than PTFE tape.

## **PLEASE NOTE**

When installing a Rheem storage water heater, a union must always be provided at the cold water inlet and hot water outlet for disconnection reasons. All connection sockets on Rheem water heaters have parallel threads and therefore tapered brass nipples must be used to ensure watertight connections.

It is a requirement of the valve manufacturer that the TPR valve fitting is sealed using PTFE tape or similar. Hemp or similar type products are not recommended and may negatively affect the performance and related warranty on the valve. However we (Rheem) would prefer hemp is used on all other connections. We have found that hemp is a more reliable thread seal than PTFE tape on these connections where expansion and contraction occurs due to temperature changes.

**For further information contact Rheem on Freephone: 0800 657 336**

During the audit all Cold Water Expansion Valves and Temperature, Pressure Relief Valves have been actuated and it has been observed that 100 percent of TPR valves have initially run with a heavy amount

of a rusty substance. This may be attributable to the fact that all apartment HWCs are concealed behind joinery with an attached screwed panel. But to access the screwed panel firstly the washing machine and wall hung dryer require removal making general maintenance such as actuating Cold Water Expansion and Temperature, Pressure Relief valves, required six monthly in the case of the TPR valve very time consuming and in many instances two men are required to safely remove the appliances to gain access.

Many Cold Water Expansion Valves and Temperature, Pressure Relief Valves when actuated into the provided tundish (usually a 40mm x 65mm PVC level invert) overflow violently and spill large amounts of water onto the uncovered concrete floor. In the event of a full activation of the Cold Water Expansion Valve and or Temperature, Pressure Relief Valve the HWC cupboard and then the apartment will more than likely be flooded with water (see high level of FWGs)

Many HWCs have isolation valves located at the cold water entry of the HWC but have had the handle required to activate the valve removed thus requiring the use of tools to isolate the cold water feed to the Hot Water Cylinder.

Please note that above report has been compiled at the request of the Masonic Villages Trust to recognise some resident's general concerns. It has been a visual audit only and non-invasive in nature. This audit is intended as a general over view of the site and there may be issues which have not become apparent due to the non-invasive nature of the audit.

If I can be of any further assistance please do not hesitate to contact me on the above number.

Yours faithfully



AllPlumb Ltd

